

Traumatic brain injury

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Updated date: Jan 19, 2021

 An abbreviated version of this protocol was published in Science Advances in Dec 2020

BBB pathophysiology-independent delivery of siRNA in traumatic brain injury

DOI: 10.1126/sciadv.abd6889

Detailed protocol

The mouse TBI model was established as previously described.^{1,2}

1. The mice (8-week-old male C57BL/6J) were anaesthetized for 45 seconds using 4% isoflurane in a 70:30 mixture of air: oxygen.
2. Anaesthetized mice were placed on a delicate task wiper (Kinwiper, Kimberly-Clark, Irving, TX) and positioned such that the head was placed directly under a hollow guide tube and front of the fictitious line between two ears.
3. The mouse's tail was grasped. A 54-gram metal bolt was used to deliver an impact to the dorsal aspect of the skull.
4. At impact, the mouse head readily penetrated the Kinwiper, resulting in a rotational acceleration of the head.
5. Sham-injured mice underwent anesthesia but not concussive injury.
6. All mice were recovered in room air. Anesthesia exposure for each mouse was strictly controlled to 45 s. LOC was defined as the time from removal of anesthesia to spontaneous righting, which reflected the effects of anesthesia as well as the effects of TBI.

How to cite: Readers should cite both the Bio-protocol article and the original research article where this protocol was used:

- 1 A. Kondo, K. Shahpasand, R. Mannix, J. Qiu, J. Moncaster, C.-H. Chen, Y. Yao, Y.-M. Lin, J. A. Driver, Y. Sun, S. Wei, M.-L. Luo, O. Albayram, P. Huang, A. Rotenberg, A. Ryo, L. E. Goldstein, A. Pascual-Leone, A. C. McKee, W. Meehan, X. Z. Zhou, K. P. Lu, Antibody against early driver of neurodegeneration *cis* P-tau blocks brain injury and tauopathy. *Nature* **523**, 431–436 (2015).
2. Mannix, R. et al. Clinical correlates in an experimental model of repetitive mild brain injury. *Ann. Neurol.* 74, 65–75 (2013).

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Mannix, R. , Li, W. and Qiu, J. (2021). Traumatic brain injury. Bio-protocol Preprint. bio-protocol.org/prep760.
2. Li, W., Qiu, J., Li, X., Aday, S., Zhang, J., Conley, G., Xu, J., Joseph, J., Lan, H., Langer, R., Mannix, R., Karp, J. M. and Joshi, N.(2020). BBB pathophysiology-independent delivery of siRNA in traumatic brain injury. *Science Advances* 7(1). DOI: [10.1126/sciadv.abd6889](https://doi.org/10.1126/sciadv.abd6889)

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